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### REMARKS

Claims 1, 12, and 18 have been amended. Claims 1 through 18 remain in the application.

Claims 1 through 4, 6, 7, 9 and 10 were rejected under 35 U.S.C. § 102(b) as being anticipated by Dieser (U.S. Patent No. 4,481,803). Applicant respectfully traverses this rejection.

U.S. Patent No. 4,481,803 to Dieser discloses a method for eliminating distortion at the end of a tube bend. A flexible mandrel 24 is provided inside a tube 12 with a mandrel head 26 and multiple mandrel balls 28. The forward end of the mandrel head 26 is aligned with a rear tangent point 30 (see FIG. 1b) of the tube 12 to a bend die 14 with a portion 32 projecting beyond the rear tangent point 30 and in the shape of half of a mandrel ball. A mandrel rod 34 extends rearwardly from the mandrel head 26 and is secured by suitable means to fix the mandrel 24 during bending. Dieser does not disclose bending the tubular member about the bend die to form a bent pre-formed tubular member having at least one curved portion with a collapsed wall to form a caved in portion on the at least one curved portion.

In contradistinction, claim 1, as amended, clarifies the invention claimed as a method of making a pre-formed tubular member. The method includes the steps of providing a tubular member extending longitudinally and providing a bending assembly having a mandrel with at least one ball and a bend die. The method also includes the steps of positioning the at least one ball inside of the tubular member and bending the tubular member about the bend die to form a bent pre-formed tubular member having at least one curved portion with a collapsed wall to form a caved in portion on the at least one curved portion.

A rejection grounded on anticipation under 35 U.S.C. § 102 is proper only where the subject matter claimed is identically disclosed or described in a reference. In other words, anticipation requires the presence of a single prior art reference which discloses each and every element of the claimed invention arranged as in the claim. In re Arkley, 455 F.2d 586, 172 U.S.P.Q. 524 (C.C.P.A. 1972); Kalman v. Kimberly-Clark Corp., 713 F.2d 760, 218 U.S.P.Q. 781 (Fed. Cir. 1983); Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co., 730 F.2d 1452, 221 U.S.P.Q. 481 (Fed. Cir. 1984).

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Dieser '803 does not disclose or anticipate the present invention of claim 1. Specifically, Diesel '803 merely discloses a method for eliminating distortion at the end of a tube bend in which a flexible mandrel is provided inside a tube with a mandrel head and multiple mandrel balls. Diesel '803 lacks bending a tubular member about a bend die to form a bent pre-formed tubular member having at least one curved portion with a collapsed wall to form a caved in portion on the at least one curved portion. In Diesel '803, the bent tube 12 has an irregular deformation 52, but the curved portion does not have a collapsed wall to form a caved in portion on the curved portion.

Diesel '803 fails to disclose the combination of a method of making a pre-formed tubular member including the steps of providing a tubular member extending longitudinally, providing a bending assembly having a mandrel with at least one ball and a bend die, positioning the at least one ball inside of the tubular member, and bending the tubular member about the bend die to form a bent pre-formed tubular member having at least one curved portion with a collapsed wall to form a caved in portion on the at least one curved portion as claimed by Applicant. Therefore, it is respectfully submitted that claim 1 and the claims dependent therefrom are allowable over the rejection under 35 U.S.C. § 102(b).

Claims 5 and 8 were rejected under 35 U.S.C. § 103 as being unpatentable over Diesel '803 in view of Ferree (U.S. Patent No. 4,727,744). Applicant respectfully traverses this rejection for the same reasons given above to claim 1.

Claim 11 was rejected under 35 U.S.C. § 103 as being unpatentable over Diesel '803 in view of Hautau (U.S. Patent No. 3,155,139). Applicant respectfully traverses this rejection for the same reasons given above to claim 1.

Claims 12 through 18 were rejected under 35 U.S.C. § 103 as being unpatentable over Schultz et al. (U.S. Patent No. 5,845,382) in view of Diesel '803. Applicant respectfully traverses this rejection.

U.S. Patent No. 5,845,382 to Schultz et al. discloses a method for manufacturing a seat frame assembly for a motor vehicle. As shown in FIG. 6(A), a tubular blank 300 is inserted between cooperating die halves 302 and 304. The blank can be manufactured by any known process. Preferably, the blank can be formed by rolling a sheet of metallic material into a complete closed

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tubular section and then seam-welding it. If desired, the tubular blank 300 can be pre-bent mechanically before insertion into the hydroforming die, for example, by use of mandrels in a CNC (computer numerically controlled) bending machine. The pre-bending minimizes the amount of bending that must be accomplished during hydro-forming. After the tubular member 300 and outsert 320 are inserted into the die, hydroforming ports 308 are engaged with opposite ends 306 of the tubular structure 300, and sealed thereto. As the die halves 302 and 304 are moved towards one another, the tube 300 is slightly crushed, for example into an oval cross-sectional shape, as shown in FIG. 6(D). The outsert 320 may also be crushed in similar fashion. Next, high pressure water, of up to 10,000 atmospheres is provided through the hydroforming ports 308 and into the inner confines of tubular structure 300. This high pressure causes the tubular structure to expand outwardly so that portions of outer surface 324 thereof surrounded by outsert 320 are moved into peripheral engagement with the inner surface 322 of outsert 320, and other portions of outer surface 324 are forced into peripheral engagement with the interior surface 310 defining the cavity within the die. The expansion of blank 300 into peripheral engagement with outsert 320 causes a corresponding expansion of outsert 320. Eventually, the tubular blank 300 and outsert 320 substantially take a rectangular cross-sectional shape to conform to the interior surface 310 of the die (e.g., see FIG. 6(F)). Schultz et al. does not disclose positioning a bent pre-formed tubular member having at least one curved portion with a collapsed wall forming a caved in portion on the at least one curved portion between open die halves.

In contradistinction, claim 12, as amended, clarifies the invention claimed as a method of making a curved hydroformed tubular member. The method includes the steps of positioning a bent pre-formed tubular member having at least one curved portion with a collapsed wall forming a caved in portion on the at least one curved portion between open die halves mating with one another to define a tubular cavity portion. The method also includes the steps of progressively closing the die halves to progressively deform the bent pre-formed tubular member within the tubular cavity portion. The method further includes the steps of applying hydraulic pressure to expand and conform the bent pre-formed tubular member to the tubular cavity portion to form a curved hydroformed tubular member and separating the die halves and removing the curved hydroformed tubular member from

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the die. Claim 18 has been amended similar to claim 12 and includes other features of the present invention.

The United States Court of Appeals for the Federal Circuit (CAFC) has stated in determining the propriety of a rejection under 35 U.S.C. § 103, it is well settled that the obviousness of an invention cannot be established by combining the teachings of the prior art absent some teaching, suggestion or incentive supporting the combination. See In re Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 227 U.S.P.Q. 657 (Fed. Cir. 1985); ACS Hospital Systems, Inc. v. Montefiore Hospital, 732 F.2d 1572, 221 U.S.P.Q. 929 (Fed. Cir. 1984). The law followed by our court of review and the Board of Patent Appeals and Interferences is that “[a] prima facie case of obviousness is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art.” In re Rinehart, 531 F.2d 1048, 1051, 189 U.S.P.Q. 143, 147 (C.C.P.A. 1976). See also In re Lulu, 747 F.2d 703, 705, 223 U.S.P.Q. 1257, 1258 (Fed. Cir. 1984) (“In determining whether a case of prima facie obviousness exists, it is necessary to ascertain whether the prior art teachings would appear to be sufficient to one of ordinary skill in the art to suggest making the claimed substitution or other modification.”)

None of the references cited, either alone or in combination with each other, teaches or suggests the claimed invention of claims 12 and 18. Specifically, Schultz et al. ‘382 merely discloses a method for manufacturing a seat frame assembly for a motor vehicle in which a tubular blank can be pre-bent mechanically before insertion into a hydroforming die by use of mandrels in a CNC (computer numerically controlled) bending machine. Schultz et al. ‘382 lacks positioning a bent pre-formed tubular member having at least one curved portion with a collapsed wall forming a caved in portion on the at least one curved portion between open die halves. In Schultz et al. ‘382, although the tubular blank can be pre-bent, there is no bent pre-formed tubular member having at least one curved portion with a collapsed wall forming a caved in portion on the at least one curved portion.

Specifically, Dieser ‘803 merely discloses a method for eliminating distortion at the end of a tube bend in which a flexible mandrel is provided inside a tube with a mandrel head and multiple mandrel balls. Dieser ‘803 lacks positioning a bent pre-formed tubular member having

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at least one curved portion with a collapsed wall forming a caved in portion on the at least one curved portion between open die halves. In Dieser '803, the bent tube 12 has an irregular deformation 52, but the curved portion does not have a collapsed wall to form a caved in portion on the curved portion. As such, there is no motivation or suggestion for combining Dieser '803 and Schultz et al. '382 together.

The present invention sets forth a unique and non-obvious combination of a method of making bent pre-formed tubular members that is less expensive than conventional deep drawing processes. The references, if combinable, fail to teach or suggest the combination of a method of making a curved hydroformed tubular member including the steps of positioning a bent pre-formed tubular member having at least one curved portion with a collapsed wall forming a caved in portion on the at least one curved portion between open die halves mating with one another to define a tubular cavity portion, progressively closing the die halves to progressively deform the bent pre-formed tubular member within the tubular cavity portion, applying hydraulic pressure to expand and conform the bent pre-formed tubular member to the tubular cavity portion to form a curved hydroformed tubular member, and separating the die halves and removing the curved hydroformed tubular member from the die as claimed by Applicant.

Further, the CAFC has held that "[t]he mere fact that prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification". In re Gordon, 733 F.2d 900, 902, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984). The Examiner has failed to show how the prior art suggested the desirability of modification to achieve Applicant's invention. Thus, the Examiner has failed to establish a case of prima facie obviousness. Therefore, it is respectfully submitted that claims 12 and 18 and the claims dependent therefrom are allowable over the rejection under 35 U.S.C. § 103.


Obviousness under § 103 is a legal conclusion based on factual evidence (In re Fine, 837 F.2d 1071, 1073, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988), and the subjective opinion of the Examiner as to what is or is not obvious, without evidence in support thereof, does not suffice. Since the Examiner has not provided a sufficient factual basis, which is supportive of his/her position (see In re Warner, 379 F.2d 1011, 1017, 154 U.S.P.Q. 173, 178 (C.C.P.A. 1967), cert. denied, 389 U.S. 1057 (1968)), the rejections of claims 5, 8, and 11 through 18 are improper. Therefore, it is

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respectfully submitted that claims 5, 8, and 11 through 18 are allowable over the rejections under 35 U.S.C. § 103.

Based on the above, it is respectfully submitted that the claims are in a condition for allowance, which allowance is solicited. Please charge any fees that may be due to Deposit Account No. 07-0960.

Respectfully submitted,



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